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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,011	09/30/2003	Lynn Dickey	040989/267934	5538
826	7590	02/07/2008	EXAMINER	
ALSTON & BIRD LLP			ZHENG, LI	
BANK OF AMERICA PLAZA			ART UNIT	
101 SOUTH TRYON STREET, SUITE 4000			PAPER NUMBER	
CHARLOTTE, NC 28280-4000			1638	
			MAIL DATE	DELIVERY MODE
			02/07/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/675,011

Applicant(s)

DICKY ET AL.

Examiner

Li Zheng

Art Unit

1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 82-84 and 87-94 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 82-84 and 87-94 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

1. Applicant's cancellations of claims 44-81, 85-86 and 95-96, and amendments to claim 82 filed on 11/2/2007 are acknowledged.

Claims 82-84 and 87-94 are pending and examined on the merits.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. The objection to the specification is withdrawn due to the amendment.

4. The objection to claim 82 is withdrawn due to claim amendment.

5. The rejection of claims 92-96 under 35 U.S.C. 112 second paragraph is withdrawn due to claim amendment.

6. Both written description and enablement rejections under U.S.C 112, First Paragraph, are withdrawn due to claim amendment and Applicants' argument.

7. All the rejections to claims 44-81, 85-86 and 95-96 are withdrawn due to claim cancellation.

***Claim Rejections - 35 USC § 103***

8. Claims 82-84 and 87-92 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Stomp et al. (1999, WO 99/07210) further in view of Wong et al. (1992, Plant Molecular Biology 20:81-93), Buzby et al. (1990, The Plant Cell 2:805-814) and Stiekema et al. (1983, Nucleic Acid Research 11:8051-8061), for the reasons of record stated in the Office action mailed May 3, 2007. Applicants traverse in the paper filed November 2, 2007. Applicants' arguments have been fully considered but were not found persuasive.

The applicants argue that Wong et al. teach that the effect of a 5'-UTL may vary depending on the coding sequences to which they are attached, and that Dai et al. teach that 5' UTL may vary depending on the plant (response, page 10, 2<sup>nd</sup> paragraph). Therefore, it is unpredictable that a particular 5' leader would work. However, in spite of existence of some inoperable embodiment as taught by Wong et al., 5'-UTL of RbcS gene from closely related species still regarded as a valid option for a person skilled in the art to try to enhance the heterologous expression (the withdrawal of the scope of enablement rejection is partly due to this rational). The teaching of Dai et al. on the other hand further motivates a person with ordinary skill in the art to try 5'UTL of RbcS gene 5B from a duckweed for enhancing heterologous expression of genes in a duckweed plant. Therefore, given the teaching of Stomp et al. that biological active protein can be produced in a transgenic duckweed plant, the teaching of Wong et al.

that 5'UTL of RbcS from Arabidopsis can dramatically enhance expression of a number of heterologous genes, and the teaching of Dai et al. that 5'UTL from not closely related species may vary, it would have been obvious for a person with ordinary skill in the art to try modifying the expression system of Stomp et al. by using the 5'UTL of Buzby et al. to further enhance heterologous gene expression in a duckweed plant. One would have motivated to do so because obtaining high yield of biological active protein in transgenic duckweed is highly desirable.

Applicants further argue that it is important to note that the 5'UTL comprising SEQ ID NO: 16 can enhance expression by at least 10 fold (response, the paragraph bridging pages 13-14). However, Wong et al. also teach that using 5' UTL of Arabidopsis RbcS gene results in 20 fold increase of the heterologous gene expression. Therefore a 10 fold increase in expression level is not unexpected.

9. Claims 82-84 and 87-94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stomp et al. (1999, WO 99/07210) further in view of Wong et al. (1992, Plant Molecular Biology 20:81-93), Buzby et al. (1990, The Plant Cell 2:805-814), Yu et al. (1995, U.S. Patent No. 5460952), Park et al. (1997, The Journal of Biological Chemistry 272:6876-6881) and Stiekema et al. (1983, Nucleic Acid Research 11:8051-8061), for the reasons of record stated in the Office action mailed May 3, 2007. Applicants traverse in the paper filed November 2, 2007. Applicants' arguments have been fully considered but were not found persuasive.

Applicants present similar argument as presented for the above rejection under 35 U.S.C. 103(a) (response, page 11, 4<sup>th</sup> paragraph). For the same reason as discussed above, the rejection is maintained.

### ***Double Patenting***

10. Claims 82-84 and 87 remain rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 16-17 of U.S. Patent No. 6,815,184 (hereafter '184) in view of Wong et al. (1992, Plant Molecular Biology 20:81-93), and Buzby et al. (1990, The Plant Cell 2:805-814) , for the reasons of record stated in the Office action mailed May 3, 2007. Applicants traverse in the paper filed November 2, 2007. Applicants' arguments have been fully considered but were not found persuasive.

Applicants present similar argument as presented for rejections under 35 U.S.C. 103(a) (response, page 12, 2<sup>nd</sup> paragraph). For the same reason as discussed above, the rejection is maintained.

11. Claims 82-84 and 87-94 remain provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 3, 8-10, 23, 26-29 of copending Application No. 10/794,615 (hereafter '615) , for the reasons of record stated in the Office action mailed May 3, 2007. Applicants traverse in the

paper filed November 2, 2007. Applicants' arguments have been fully considered but were not found persuasive.

Applicants do not present any argument and therefore the rejection is maintained. However, Applicants' intention to address the filing of a terminal disclaimer when the application is otherwise in condition for allowance is acknowledged (response, page 12, 4<sup>th</sup> paragraph).

12. The rejection of claims 82-84 and 87 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of copending Application No. 10/873846 (hereafter '846) in view of Wong et al. (1992, Plant Molecular Biology 20:81-93), and Buzby et al. (1990, The Plant Cell 2:805-814) is withdrawn due to abandonment of the application.

Claims 82-84 and 87 are now rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of copending Application No. 11/778,480, which is a continuation application of the abandoned application of '846, in view of Wong et al. (1992, Plant Molecular Biology 20:81-93), and Buzby et al. (1990, The Plant Cell 2:805-814), for the reasons of record stated in the Office action mailed May 3, 2007. Applicants traverse in the paper filed November 2, 2007. Applicants' arguments have been fully considered but were not found persuasive.

Applicants present similar argument as presented for rejections under 35 U.S.C. 103(a) (response, page 13, 1<sup>st</sup> paragraph). For the same reason as discussed above, the rejection is maintained.

### ***Summary***

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

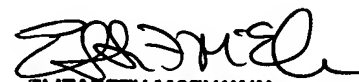


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li Zheng whose telephone number is 571-272-8031. The examiner can normally be reached on Monday through Friday 9:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on 571-272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
ELIZABETH MCELWAIN  
PRIMARY EXAMINER